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Migration phenomenon: a globalization effect or a consequence of poverty?

Emilia Titan [a], Simona Ghita [b]*, Mihaela Covrig [c]

[abc] *The Bucharest Academy of Economic Studies, Department of Statistics and Econometrics, 6, Romana Square, District 1, Bucharest, Postal Code: 010374, Postal Office 22, Romania*

Abstract

Most explanations of migration to European Union destinations are generally classified in the neoclassical theory of migration, which considers migration as a result of income differences between origin and destination countries. It emerged, however, another theory that explains changes occurring on migration flows: as a consequence of globalization, increasingly extended. In this paper, the authors have applied the Principal Component Analysis in order to identify the main components that influence and explain changes in the migration flows. These components are used as ranking criteria for European countries and they are included in a correlation analysis with indicators of migration flows.

Keywords: migration, globalization, Principal Component Analysis, multi-criteria ranking method;

1. Introduction

The migration phenomenon has increased in size and importance in all EU member or non-member countries. Over time, the size and the structure of migration flows have experienced substantial changes and have long-term and short-term impacts on the size and structure of the population, in general. In the first decade of the 21st century there has been a substantial migration flow to and from the EU, whose peak was reached in 2007 (about four million people). In Romania, the size of migration has exponentially increased, the top recipient countries being Italy and Spain, countries which - in 2010 - numbered between 800 and 900 thousands inhabitants with Romanian citizenship (EUROSTAT). In the literature there is a limitation of empirical research on understanding the main determinants of migration flows. In this paper, the authors have applied the Principal Component Analysis in order to identify a few components that might influence and explain the migration flows. These components are used as ranking criteria for European countries and they are, also, included in a correlation analysis with indicators of migration flows.

2. Literature review

Most studies that contain explanations of migration to EU destination are generally framed in the context of the neoclassical theory of migration. Originally developed to explain the changes in internal migration, migration theory

* Corresponding author name. Tel.: +40-722-689-784
E-mail address: simo_ghita@yahoo.com

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considers migration as an effect of wage differences between de origin countries and the destination countries (Hatton and Williamson, 2002, Rooth and Saarela, 2007). Thus, neoclassical theory of migration presumes that international migration is the result of the desire of emigrants to leave from countries with low wages or high unemployment, to countries with higher wages or with job openings, in order to reach a certain standard of living (Massey, 2008). Neoclassical explanations are used in contemporary researches of skilled migration trends (Marchal and Kegels, 2003; Mullan, 2005).

It emerged, however, another theory that explains the changes occurring in migration flows: as a consequence of globalization. Zolberg (1989, 1999) sustains the theory that the state may have some control over migration, so he assumes that migration flows are the result of immigration law states. Another factor that stimulates the migration process is the emergence and expansion of multinational companies. Specialized studies sustain that after people's migration, the subsequent migration flows are perpetuated as a result of interpersonal relations, especially family relations, facilitated by the high-level communication technique (mobile phones, internet). Urbanization process also had an effect on changes in migration flows, by facilitating access to information and resources, higher in urban than in rural areas. (Massey, 1998).

3. Principal Component Analysis

There are many variables that may influence the migration flows. We have applied the Principal Component Analysis in order to reduce the data set and to group the initial variables in a few components that contain as much variability of the original data as possible.

The analysis is performed on the following variables: *GDP per capita* (index EU27=100); *People at risk of poverty or social exclusion* (% of the total population); *Gender pay gap*; *Inequality of income* (income quintile share ratio); *Individuals' level of Internet skills* (percentage of the total number of individuals aged 16 to 74); *The share of households with access to Internet*; *Mobile phone subscriptions* (here it is expressed as percentage out of total number of subscriptions in European countries).

The variables of interest were considered for thirty European countries (EU or non-EU members), their values corresponding to 2010 year, being provided by EUROSTAT database.

The correlation matrix shows that there aren't too many strong positive or negative correlations between variables, but some of them are relatively high and statistically significant. For instance, there is a rather strong negative correlation between the poverty or social exclusion risk and the share of households with access to Internet (Pearson coefficient of correlation: -0,794), or a rather strong positive correlation between the income inequality and poverty or social exclusion risk (Pearson coefficient of correlation: 0,774). The value of KMO index (0,603) sensibly exceeds the minimum requested value for applying the Principal Component Analysis, revealing that the data is appropriate for this type of analysis. The value of Bartlett's Test of Sphericity (83,028; Sign. 0,000) shows that we can reject the hypothesis that sustains the non-correlation between variables. Thus, for a high confidence level, we can assume that there is at least one common factor that motivates the application of the Principal Component Analysis (Table 1).

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,603
Bartlett's Test of Sphericity	Approx. Chi-Square	83,028
	df	21
	Sig.	,000

The Communalities table shows that five out of seven variables have large proportions of their variances explained by the principal components. These five variables (mobile phones subscriptions, the share of households with Internet access at home, poverty or social exclusion risk, income inequality and the individuals' level of Internet skills) are well represented in the common factor dimension (communalities between 0,75 and 0,92).

By studying the *scree plot* (Figure 1), we consider more appropriate to combine the last two components into a single one, under the name of "Globalization" Component (globalization /communication component). The variables included in the 2nd Component are also elements of KOF Index of Globalization (even if not identical

expressions, but similar). The two components reflect the two main sources/causes of migration flows, considered in our paper: the living standard and social inequalities (reflected by the first component); the globalization process (reflected by the second component).

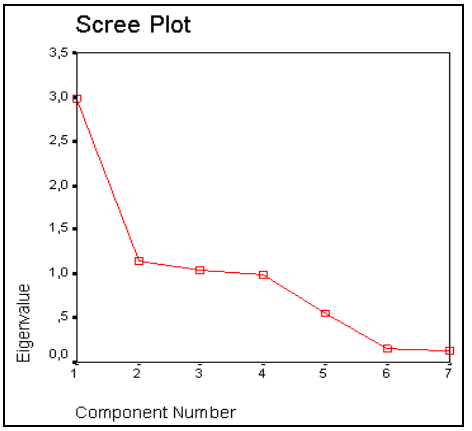

Figure 1. Scree Plot

By applying the Principal Component Analysis there were identified three main components, with *Eigen-values* equal to 1 or greater. These three components account for almost 74% of the total variance. The three principal components include the following variables (Table 2):

Table 2. Principal Components

Initial Component	Variables	Component name	
1	- poverty or social exclusion risk (%)	Living standard and social exclusion component	1st Component (*Living standard and social exclusion component*)
	- GDP per capita (%)		
	- income inequality (coefficient)		
	- households with Internet access at home (%)		
2	- individuals' level of Internet skills	Computer abilities component	2nd Component (*Globalization component*)
3	- number of mobile phones subscriptions (%)	Communication component	

4. EU countries ranking after the two blocks of migration factors

The method used for ranking the EU countries has been the Relative Scores Method. The ranking criteria consisted of the two main components identified after applying the Method of Principal Components Analysis:

1st Component: Living Standard and social exclusion component, composed of the following variables: poverty or social exclusion risk (%); households with Internet access at home (%); income inequality; GDP per inhabitant (%).

2nd Component: Globalization component, which includes the following variables: individuals' level of Internet skills (%); mobile phones subscriptions (%).

We supplemented the Globalization Component with a third variable, in order to reflect the dimension of international tourism flows: number of air-transport passengers (%), for all EU member countries.

a. EU countries ranking after the ***Living Standard and social exclusion*** **Component**.

Applying the ranking method, the top countries, with the most favorable situation in terms of considered factors (high GDP/capita, reduced risk of poverty and social exclusion) were: Luxembourg (Rank 1), Netherlands (Rank 2), Sweden (Rank 3) and Finland (Rank 4). The last ranked European countries were: Bulgaria (Rank 27), proceeded by Romania (Rank 26), Latvia (Rank 25) and Lithuania (Rank 24). Netherlands achieved 88,83% of the maximum performance (of the first ranked country, Luxembourg), while Sweden achieved 87,74% of it. The last ranked countries achieved between 36-38% of the best performance.

b. EU countries ranking after the ***Globalization*** **Component.**

The results of applying the ranking method, after the block of Globalization factors show that the countries ranked in high places, countries that have created the most favorable conditions for globalization process – were: Germany (Rank 1), United Kingdom (Rank 2), France (Rank 3) and Italy (Rank 4). The last ranked European countries were: Malta (Rank 27), Luxembourg (Rank 26), Slovenia (Rank 25) and Estonia (Rank 24). The results of applying the ranking method after the two components of migration factors were different (Figure 2).

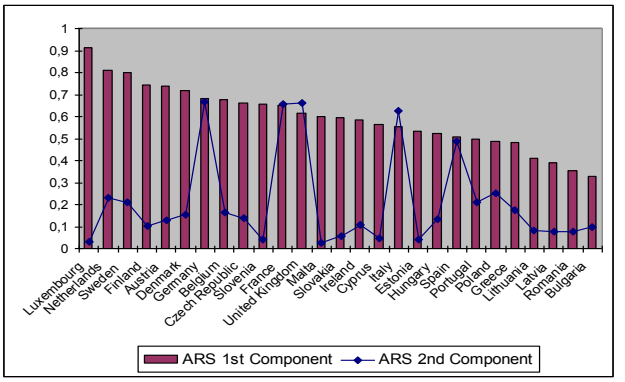

Figure 2. The Average Relative Scores of the two principal components of migration factors

In Figure 2, ARS is the average relative score for first, respectively second principal component.

5. The correlation between the two principal components and the migration flows

In order to reflect the relation between the two main components of migration factors (on one hand) and the indicators of migration flows (on the other hand) we have used the correlation method. The method has been applied on the relative scores of the studied variables.

Analysis showed that the second principal component (that reflects the globalization process) is more strongly correlated with migration flows (both emigrant flows and immigrant flows) than the first principal component (related to living standards and social exclusion) (Figure 3).

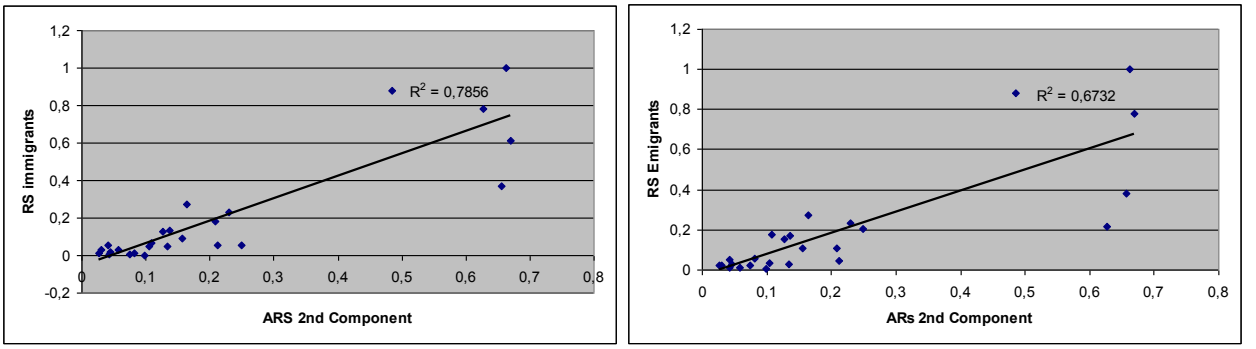

Figure 3. Correlation between the 2nd Component and Emigrant/Immigrant flows (using relative scores)

The identified and measured correlation between the average relative score of the main component and the relative score of the emigrant flows is negative and of average intensity, while the correlation between the average relative score of the same component and the relative score of the immigrant flows is insignificant.

Instead, the Globalization component influences 67% of the variation of emigrant flows and 78,5% - of the variation of the immigrant flows. A possible explanation of these results could be that in the new information society, high technology enables, facilitates to a large extent the access to information, communication, favoring the extension of globalization process and feeding the free traveling of persons. A higher influence of globalization

process on the emigration phenomenon is observed in countries with higher living standards, with a lower risk of social exclusion, countries with consistent long-term emigrant flows.

6. Conclusions

The size and the structure of migration flows have experienced substantial changes over time and have long and short-term impacts on the size and the structure of the overall population. The idea of this paper started from the fact that the literature does not cover well enough the main determinants of migration, especially for certain categories of migrants. The migration patterns themselves have become more complex, as the range of motivational factors has been diversified. We have studied here two groups of migration factors, according to the main existing theories: one that refers to the standard of living and another that refers to the phenomenon of globalization. Using the Principal Component Analysis we have identified two main components of migration determinants: 1st Component: *Living Standard and social exclusion component*; 2nd Component: *Globalization component*.

The two components explain almost 74% of the total variance of the initial data and they became ranking criteria in applying the Relative Scores Method for European countries. The hierarchies obtained for these two components are different:

- the hierarchy of European countries, after the ***Living Standard and social exclusion*** **Component** includes well developed countries, mostly from Northern Europe as the top-countries (Luxembourg, Netherlands, Sweden and Finland) and former socialist countries on the last positions (Bulgaria, Romania, Latvia and Lithuania);
- the hierarchy of European countries, after the ***Globalization*** **Component** contains well developed European countries in the top-four (Germany, United Kingdom, France and Italy) and Malta, Luxembourg, Slovenia and Estonia ranked on the last four positions.

The Correlation Analysis showed that the second principal component that reflects the globalization process is more strongly correlated with migration flows (both emigrant flows and immigrant flows) than the first principal component, related to living standards and social exclusion. In the future, this component might become stronger correlated with migration flows, even in high-developed countries, with a higher living standard, but also with polarized societies.

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